

## **REMARKS**

### **Interview Summary**

At the outset, Applicants wish to thank the Examiner Sudhakar Katakam and his Supervisory Primary Examiner Daniel Sullivan for the courtesy shown at the interview held with Applicant's representatives, US Patent Attorney David Wallace, and European Patent Attorneys Gérard and Frédéric Portal.

Rejoinder of claims 22-24, which have a formal link to claim 12, was discussed. It was the Applicant's Representatives understanding that claims 22-24 would be rejoined upon allowability of claim 12. Similarly, it is respectfully solicited the rejoinder of claim 26, which depends from claim 25, upon allowability of claim 25.

It was also pointed out that pending claim 25, which was added previously, was not addressed in the Office action. The Examiners indicated that they would reissue a new office action and reset a new term for response.

The Examiners indicated that claim 25 appears to be allowable and that they would reconsider the allowability of claim 12 in view of the evidence of unexpected results in the specification that was discussed.

### **New Claims**

New claim 26 has been added. The new claim is similar to claim 22, but new claim 26 depends from claim 25 instead of claim 12.

### **Claim rejections – 35 USC 103**

The Examiner has maintained rejection of claims 12-21 under 35 USC 103(a) as being unpatentable over Johnson WO99/18065 in view of Tinsley US 3,375,387.

The Examiner concluded in the final office action on page 5, item 7, that: "no claim is allowed in absence of a clear delineation of the claims from the prior art and a side by side showing of unexpected results commensurate in scope of the claims".

At the interview it was discussed the unobviousness of the invention as claimed in independent claims 12 and 25, with support of unexpected technical results as follows:

- a) The main purposes of the preferred embodiments of the invention are to provide a

process enabling the large scale preparation of ene-amide derivatives and in good yield, great facility of product isolation, and excellent chemical purity of product and which is reproducible, as it is set forth in the specification paragraphs 1, 7 and 8 of the US published application. These technical results are obtained with the pending claims 12 and 25.

b) Johnson was cited in paragraph 2 of the Applicant's specification with the notation that Johnson's process is unsuitable for large scale production. It was further explained at the interview why Johnson was unsuitable for large scale production. For Example, it appears that Johnson uses iron as a catalyst to transform the oxime into the ene-amide and that it uses twice as much iron as the oxime itself. Accordingly, in large scale production the amount of catalyst would be enormous with regard to the oxime, thereby making the process unsuitable for large scale production and industrialization.

In contrast, in the invention the content of the catalyst is in an amount ranging between 0.001 and 30 mole%, based on the used catalyst. See original claim 4, and pending claims 15 and 25; see also Examples 1 to 5.

c) In view of this it is indisputable that **claim 25** which is limited to this catalyst/ oxime ratio, is patentable.

d) In addition it is also believed that claim 12 is also patentable.

Indeed, these unexpected results are obtained due to the use of different catalyst selected from palladium, iridium, rhodium and nickel (see claim 12 and 25).

Claim 12 provides a scope commensurate with rewarding the inventors for the invention made.

It is undisputable that although Johnson's processes use a similar step of formation of ene-amide from an oxime through catalytic isomerization, the essential technical difference lies in the fact that Johnson performed it solely with **iron**.

Indeed, an important aspect of the claimed invention is the use of a metal that is not iron, namely, one that is selected from palladium, iridium, platinum, rhodium, or nickel and that it is sufficient to provide unexpected results which are implied from the choice of this metal, namely the much lower content of catalyst with regard to the oxime, and/or obtention of better yields.

With regard to the yields, the Examiner said that we had an example at 66% (example 1b) and one at 59.9% (example 1c) and further one example at 57.50 (example 2d) which is close or

similar to the percentage of 54% which is obtained by Johnson. See example 5B, page 10, of Johnson.

In this respect, Applicant's Representatives emphasized that one should look not only at the relative ratio between the metal catalyst and the oxime, but also at the temperature of the reaction.

If we look at Johnson's example 5B, the temperature which is used for the reaction is 70°C (page 10, line 23).

In preferred embodiments of the invention, when the yield is relatively lower, like in example 2d, first, it is a different product, namely the 6-methoxy-1-indanone, and second, the temperature is only 30°C.

And for  **$\alpha$ -tétralone** of example 3 of the application, which is to be compared with example 5B of Johnson, the invention obtains a yield of 84% (Specification Ex 3a, page 17, line 20; Ex 3b, 79%), whereas Johnson obtains 54% (page 10, line 28 of Johnson).

In view of this, pending claim 12 relates to a patentable invention providing unexpected effects. It is respectfully submitted that it was unobvious for one skilled in the art to replace iron for another catalyst, let it be rhodium or a metal of the list of metal catalysts set forth in claims 12 and 25, for the critical step of formation of the ene-amide from an oxime of formula II as claimed.

In addition, since Johnson discloses iron as the sole catalyst to prepare the ene-amide from the oxime, Johnson teaches away from the invention and further justifies the unobviousness of the invention over the Johnson reference.

e) The Examiner is making combination of Johnson with Tinsley US 3,375,287 of 1968.

It should be first observed that this Tinsley patent was published about 30 years prior to the Johnson patent. In view of this, if a combination of Johnson with Tinsley would have been obvious, Johnson would have made it himself.

The fact that the Tinsley reference was as old as 30 years prior to the Johnson invention, already shows the unobviousness of the invention. Moreover, Tinsley teaches that his process is solely applicable to ethylenically unsaturated compounds which are composed solely of carbon and hydrogen, namely a cycloaliphatic nucleus having up to 16 carbon atoms in said nucleus and at least one migratable ethylenic bond. See column 1, lines 26-61 of Tinsley.

This is manifestly not applicable to the **oximes** to be transformed into ene-amides.

Under these conditions, it was nonobvious for one skilled in the art to use the Tinsley technology in the conversion of oximes into ene-amides. This is further corroborated by the fact that Johnson knowing this document which belongs to the state of the art at that time, did not use the catalyst disclosed in Tinsley but only iron.

In view of this, absent hindsight made from knowledge of the invention, it is apparent that the invention as claimed is nonobvious for one skilled in the art to which the invention pertains.

In view of the above amendments and remarks, Applicant respectfully requests a Notice of Allowance. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

Please charge any additional fees or credit any overpayment to Deposit Account No. 13-2725.

Respectfully submitted,

MERCHANT & GOULD P.C.

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By           /W. David Wallace/            
W. David Wallace  
Reg. No. 42,210

P.O. Box 2903  
Minneapolis, Minnesota 55402-0903  
Telephone No. (202) 326-0320  
Facsimile No. (202) 326-0778

